IN THE CLAIMS

1. (currently amended) A nuclear reactor core comprising:

a plurality of fuel assemblies, each said fuel assembly comprising a lower tie plate and a main coolant flow channel comprising an inlet; and

a coolant flowing through said plurality of fuel assemblies;

said plurality of fuel assemblies arranged into at least three regions within said core;

each said main coolant flow channel further comprising a ~~separate~~ means of controlling a flow of coolant through said main coolant flow channel so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same, and that the coolant flow through said fuel assemblies in each said region is different from the coolant flow through said fuel assemblies in each other region, said means of controlling said flow of coolant through said main coolant flow channel located in said inlet of said main coolant flow channel, each said main coolant flow channel having its own means of controlling coolant flow that is separate from means of controlling coolant flow for each other main coolant flow channel.

2. (previously presented) A reactor core in accordance with Claim 1 wherein said means comprises a plurality of coolant orifices, each said coolant orifice located in an inlet of a cooling flow channel.

3. (original) A reactor core in accordance with Claim 2 wherein said coolant orifices of said fuel assemblies located in a particular region are sized so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same.

4. (original) A reactor core in accordance with Claim 3 wherein said coolant orifices of said fuel assemblies are sized so that the coolant flow through said fuel assemblies in

each said region is different from the coolant flow through said fuel assemblies in each other region.

5. (original) A reactor core in accordance with Claim 1 wherein said core comprises a substantially circular cross section, and said fuel assemblies are arranged in an edge region located circumferentially around an outer edge of said core, a middle region located adjacent said edge region, and a central region located in the center of said core, said middle region located between said edge region and said central region.

6. (original) A reactor core in accordance with Claim 5 wherein the flow of coolant through said fuel assemblies located in said edge region is less than the flow of coolant through said fuel assemblies located in said middle region.

7. (original) A reactor core in accordance with Claim 6 wherein the flow of coolant through said fuel assemblies located in said middle region is less than the flow of coolant through said fuel assemblies located in said central region.

8. (previously presented) A reactor core in accordance with Claim 1 wherein said means comprises a plurality of flow restriction devices, each said flow restriction device detachably coupled to a lower end of said lower tie plate.

9. (original) A reactor core in accordance with Claim 8 wherein said flow restriction devices of said fuel assemblies located in a particular region are sized so that so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same.

10. (original) A reactor core in accordance with Claim 9 wherein said flow restriction devices of said fuel assemblies are sized so that the coolant flow through said fuel assemblies in each said region is different from the coolant flow through said fuel assemblies in each other region.

11. (previously presented) A reactor core in accordance with Claim 2 wherein said means further comprises a plurality of flow restriction devices, each said flow restriction

device detachably coupled to a lower end of said lower tie plate, said flow restriction devices of said fuel assemblies located in a particular region are sized so that so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same.

12. (original) A reactor core in accordance with Claim 11 wherein said flow restriction devices of said fuel assemblies are sized so that the coolant flow through said fuel assemblies in each said region is different from the coolant flow through said fuel assemblies in each other region.

13. (previously presented) A nuclear reactor core comprising:

a plurality of fuel assemblies, each said fuel assembly comprising a lower tie plate and a main coolant flow channel comprising an inlet;

a coolant flowing through said plurality of fuel assemblies; and

a plurality of coolant orifices, each said coolant orifice comprising a diameter and located in said inlet of said main coolant flow channel of one of said plurality of fuel assemblies;

said plurality of fuel assemblies arranged into at least three regions within said core;

said diameter of said coolant orifices located in a particular region are substantially the same so that a flow of coolant through said main coolant flow channels of said fuel assemblies located in the particular region are substantially the same, and said diameter of said coolant orifices located in each region is different from the diameter of said coolant orifices in each other region so that the flow of coolant through said fuel assemblies in each said region is different from the flow of coolant through said fuel assemblies in each other region.

14. (original) A reactor core in accordance with Claim 13 wherein said core comprises a substantially circular cross section, and said fuel assemblies are arranged in an edge region located circumferentially around an outer edge of said core, a middle region located

adjacent said edge region, and a central region located in the center of said core, said middle region located between said edge region and said central region.

15. (previously presented) A reactor core in accordance with Claim 14 wherein said diameter of said coolant orifices located in said edge region is less than said diameter of said coolant orifices in said middle region.

16. (previously presented) A reactor core in accordance with Claim 15 wherein said diameter of said coolant orifices located in said middle region is less than said diameter of said coolant orifices located in said central region.

17. (original) A reactor core in accordance with Claim 13 further comprising a plurality of flow restriction devices, each said flow restriction device detachably coupled to a lower end of said lower tie plate, said flow restriction devices of said fuel assemblies located in a particular region are sized so that so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same.

18. (previously presented) A nuclear reactor core comprising:

a plurality of fuel assemblies, each said fuel assembly comprising a lower tie plate and a main coolant flow channel comprising an inlet;

a coolant flowing through said plurality of fuel assemblies; and

at least one of a plurality of coolant orifices and a plurality of flow restriction devices, each said coolant orifice comprising a diameter and located in said inlet of said main coolant flow channel of one of said fuel assemblies, each said restriction device detachably coupled to a lower end of said lower tie plate and comprises a plurality of flow openings, each said flow opening having a diameter;

said plurality of fuel assemblies arranged into at least three regions within said core;

said diameter of said coolant orifices located in a particular region are substantially the same, and said diameter of said coolant orifices of each said region is different from said diameter of said coolant orifices in each other region;

said flow restriction devices located in a particular region are sized so that a number of flow openings are the same, and said number of flow openings of said flow restriction devices of each said region is different from said number of flow openings of said flow restriction devices of each other region.

19. (original) A reactor core in accordance with Claim 18 wherein said core comprises a substantially circular cross section, and said fuel assemblies are arranged in an edge region located circumferentially around an outer edge of said core, a middle region located adjacent said edge region, and a central region located in the center of said core, said middle region located between said edge region and said central region.

20. (original) A reactor core in accordance with Claim 19 wherein said diameter of said coolant orifices located in said edge region is less than said diameter of said coolant orifices located in said middle region.

21. (original) A reactor core in accordance with Claim 20 wherein said diameter of said coolant orifices located in said middle region is less than said diameter of said coolant orifices located in said central region.

22. (original) A reactor core in accordance with Claim 21 wherein said flow restriction devices of said fuel assemblies located in a particular region are sized so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same.

23.-27. (cancelled)